

REMARKS

Claims 1-15 are pending in the application and are rejected. Applicant submit herewith an RCE, along with the present remarks and Inventor's Declaration under 37 C.F.R. 1.132 describing experimental results showing unexpected results associated with the particularly claimed range of content of glass fiber.

Rejections under 35 U.S.C. §102 - Anticipation

The Examiner asserts that Matsuyama teaches "less than 25%", which may anticipate Applicant's claimed range of "less than 3%."

Applicant agrees that Matsuyama teaches "less than 25%", but notes that the reference does not disclose any working examples in the claimed range of less than 3%.

Applicant notes MPEP §2131.03, which states that,

When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case-by-case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims.

The claims are directed to a significantly more narrow range (" $< 3\%$ ") than the cited reference discloses (" $< 25\%$ "). Applicant further submits herewith an Inventor's Declaration that demonstrates evidence of unexpected results associated with the claimed invention.

Applicant submits that one would conclude that the claimed range is not taught with sufficient certainty to constitute an anticipation of the claims.

Rejections under 35 U.S.C. §103(a)

Claims 1, 3, 4, and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuyama (JP 57172374 A). The remaining dependent claims are rejected over various combinations of references, with Matsuyama as the basis thereof. Applicant submits that the rejections of the dependent claims are subsequently overcome by overcoming the rejection over Matsuyama.

The Examiner concludes that it would have been an obvious matter of design choice to have used a top layer with a glass particle weight ratio of “less than 3%” as claimed, because Applicant has not disclosed that using a weight ratio of less than 3% provides a particular or unexpected advantage. The Examiner notes that Matsuyama discloses “less than 25%”, and this would have led one skilled in the art to utilize amounts of glass fiber in all ranges between zero and 25%.

Applicant respectfully disagrees with this conclusion, because the cited reference clearly does not recognize the unexpectedly superior results associated with the particularly claimed range.

Applicant notes that the present invention discloses a fixing roller comprising a primer layer and a top layer, wherein glass particles are mixed into at least one of said primer layer and said top layer; and wherein a ratio of said glass particles to the top layer is a weight ratio of less than 3%. The present invention achieves both sufficient releasability and scratch-resistance simultaneously by mixing such a small amount (a weight ratio of less than 3%) of glass particles.

When the weight ratio of glass particles is increased, the layer decreases in releasability. The mechanism is as follows: a fluororesin originally has good releasability from a fused toner, that is, a fused toner hardly adheres to a surface of a fluororesin. Further, a glass itself has poor releasability from a fused toner, that is, a fused toner easily adheres to a surface of a glass. Therefore, mixing glass particles will deteriorate releasability, depending on the amount of the glass particles added.

The inventor newly discovered a range of an appropriate weight ratio to have both sufficient scratch-resistance and releasability. As indicated in the experimental results in the attached Inventor's Declaration, if the weight ratio of the glass particles is less than 3%, scratch-resistance is significantly improved without deterioration in releasability for practical use. However, if the amount of glass fiber is greater than 3%, releasability and the roller quickly accumulates undesirable amounts of toner.

Applicant notes that Matsuyama focuses on the fact that wear resistance of a fluororesin layer of a heat fixing roller is insufficient, and discloses its technology to mix glass fibers merely to improve the wear resistance. If the purpose is merely to improve the wear resistance, glass fibers in a weight ratio of as much as 25% are shown to be appropriate. No particular range in the taught range of "< 25%" is taught as superior, except the claimed range of "3-25%" as in claim 2 of Matsuyama. Conversely, Applicant submits that the range of < 3% provides unexpectedly superior results.

Applicant submits herewith an Inventor's Declaration that demonstrates evidence that there are unexpectedly superior results obtained with the use of weight ratio of glass particles of less than 3%. This result is not taught or suggested by the cited reference or any combination of cited references.

Response to Accompany RCE
Attorney Docket No. 001745
Serial No. 09/748,012


In view of the aforementioned amendments and accompanying remarks, Applicant submits that the claims, as herein amended, are in condition for allowance. Applicant requests such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Kenneth H. Salen
Attorney for Applicant
Registration No. 43,077

Enclosure: Inventor's Declaration under 1.132

KHS/led
1250 Connecticut Avenue, NW
Suite 700
Washington, D.C. 20036
(202) 822-1100

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